

SERVICE
MANUAL

AV251

marantz®

model AV251

Audio / Video Controller

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, MARANTZ part number has to be specified. If you order by mail, fulfil MARANTZ order forms.

MARANTZ S.A.
EUROPEAN PARTS DEPARTMENT
2, Avenue Léopold III
B-7120 PERONNES-lez-BINCHE
BELGIUM
TWX: 57589 SEPLT B

MARANTZ NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
Phone: 1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

PARTS ORDERING:

Parts may be ordered from the following addresses:

EUROPE

MARANTZ FRANCE	MARANTZ GERMANY G.M.B.H.	MARANTZ SVENSKA A.B.	MARANTZ S.A.	AL ALAMIAH ELECTRONICS
4 Rue Bernard Patissier 92600 Asnières France Telex: 611651	Max-Planck-Straße 22 6072 Dreieich 1 Germany Telex: 4185316	Aldermanvägen 19-21 Box 1240 171 24 Solna Sweden Telex: 13449	326 Avenue Louise Bte 32 1050 Bruxelles Belgium Telex: 26602	Ussama Building Fahd Saleem Street P.O. Box 23781 Safat-Kuwait
MARANTZ DENMARK	MARANTZ AUSTRIA Ge.M.B.H.	MARANTZ S.A.	MARANTZ AUDIO U.K. LTD.	AL ALAMIAH ELECTRONICS
Bregnerødej 132b 3460 Birkerød Denmark Telex: 39137	25 Franz Lisztgasse 2380 Perchtoldsdorf Austria Telex: 113583	European Parts Department 2, Avenue Léopold III B-7120 Péronnes-lez-Binche Belgium Telex: 57589	Unit 15/16 Saxon Way Industrial Estate Moor Lane Harmondsworth UB7 0LW Great Britain Telex: 935196	P.O. Box 5954 University Street Riyadh 11432 Saudi Arabia
MARANTZ BELGIUM	MARANTZ ITALIANA S.p.A.	AUSTRALIA	U.S.A.	JAPAN
45 Rue Auguste Van Zande 1080 Brussels Belgium	Via Montenapoleone 10 20121 Milano Italia	MARANTZ AUSTRALIA PTY., LTD. 19 Chard Road Brookvale, NSW 2100 Australia Telex: 24121	MARANTZ COMPANY, INC. National Service Dept. P.O. Box 577 Chatsworth, CA 91311 U.S.A. Telex: 4720284	MARANTZ JAPAN, INC. 35-1, 7-chome, Sagamiono Sagamihara-shi, Kanagawa Japan Telex: 22878

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

NOTE—FOR U.S.A. ONLY

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

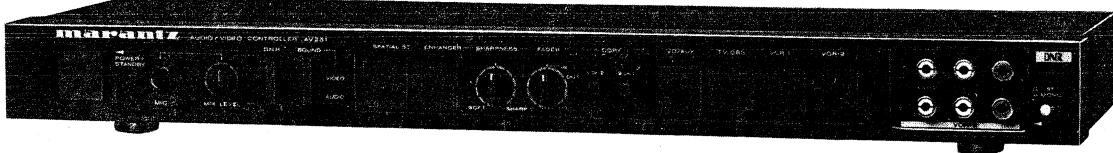
Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from MARANTZ NATIONAL PARTS DEPARTMENT.

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MODEL AV251 AUDIO/VIDEO CONTROLLER



INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for the Marantz Model AV251 Audio/Video Controller.

Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.

The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

1. SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.

2. P.W. BOARDS

As can be seen from the circuit diagram the chassis of Model AV251 consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Main mounted on P.W. Board PK01
2. VCR-2 IN/OUT mounted on P.W. Board PV01
3. VCR-2 Sub mounted on P.W. Board PV02
4. Function Indicator mounted on P.W. Board PY01
5. Spatial Enhancer mounted on P.W. Board PY02

3. LM1894 DYNAMIC NOISE REDUCTION SYSTEM DNR™ (Q901)

General Description

The LM1894 is a stereo noise reduction circuit for use with audio playback systems. The DNR™ system is non-complementary, meaning it does not require encoded source material. The system is compatible with virtually all prerecorded tapes and FM broadcasts. Psychoacoustic masking, and an adaptive bandwidth scheme allow the DNR™ to achieve 10 dB of noise reduction. DNR™ can save circuit board space and cost because of the few additional components required.

Features

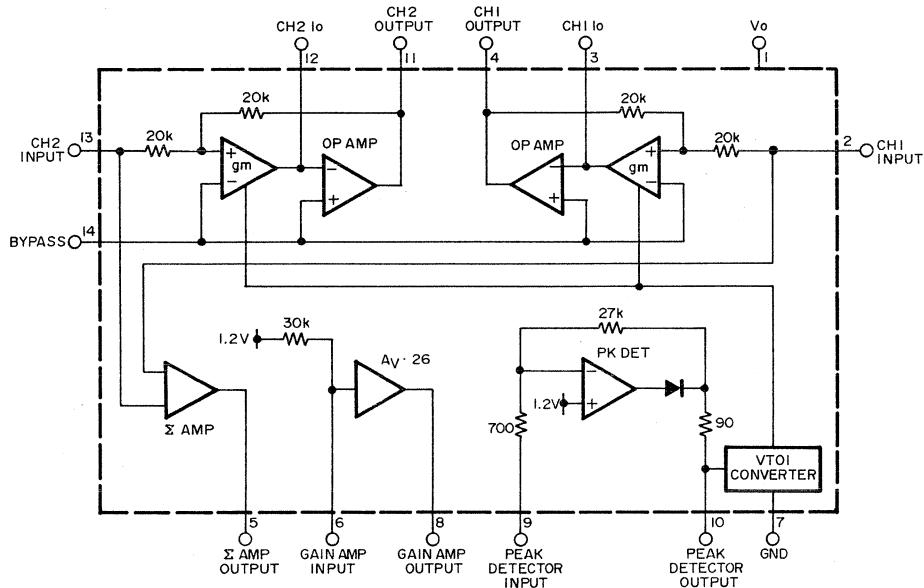
- Non-complementary noise reduction, "single ended".
- Low cost external components, no critical matching.
- Compatible with all prerecorded tapes and FM.
- 10 dB effective tapenoise reduction CCIR/ARM weighted.
- Wide supply range, 6 V to 18 V.
- 1 Vrms input overload.
- No license requirements.

Electrical Characteristics

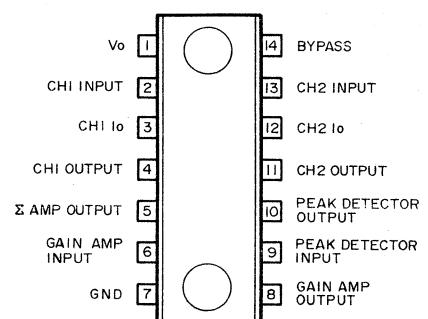
$V_S=8V$, $T_A=25^\circ C$, $V_{IN}=300$ mV at 1 kHz.

Parameter	Conditions	Min	Typ	Max.	Units
Operating Supply Range Supply Current	$V_S=8$ V	6	8 17	18 25	V mA
MAIN SIGNAL PATH					
Voltage Gain	DC Ground Pin 9	-0.9	-1	-1.1	V/V
DC Output Voltage		3.7	4.0	4.3	V
Channel Balance	DC Ground Pin 9	-1.0		1.0	dB
Minimum Bandwidth	AC Ground Pin 9 with $0.1\mu F$ Capacitor	675	965	1400	Hz
Maximum Bandwidth	DC Ground Pin 9	27	34	46	kHz
Effective Noise Reduction	CCIR/ARM Weighted		-10	-14	dB
Total Harmonic Distortion	DC Ground Pin 9		0.05	0.1	%
Input Headroom	Maximum V_{IN} for 3% THD AC Ground Pin 9		1.0		Vrms
Output Headroom	Maximum V_{OUT} for 3% THD DC Ground Pin 9	$V_S-1.5$			V _{P-P}
Signal to Noise	BW=20 Hz – 20 kHz, re 300 mV AC Ground Pin 9 DC Ground Pin 9		79 77		dB dB
	CCIR/ARM Weighted re 300 mV AC Ground Pin 9 DC Ground Pin 9	82 70	88 76		dB dB
	CCIR Peak, re 300 mV AC Ground Pin 9 DC Ground Pin 9		77 64		dB dB
Input Impedance	Pin 2 and Pin 13	14	20	26	k Ω
Channel Separation	DC Ground Pin 9	-50	-70		dB
Power Supply Rejection	C14=100 μF , $V_{RIPPLE}=500$ mVrms, $f=1$ kHz	-40	-56		dB
Output DC Shift	Reference DVM to Pin 14 and Measure Output DC Shift from Minimum to Maximum Bandwidth		4.0	20	mV
CONTROL SIGNAL PATH					
Summing Amplifier Voltage Gain	Both Channels Driven	0.9	1	1.1	V/V
Gain Amplifier Input Impedance	Pin 6	24	30	39	k Ω
Voltage Gain	Pin 6 to Pin 8	21.5	24	26.5	V/V
Peak Detector Input Impedance	Pin 9	560	700	840	Ω
Voltage Gain	Pin 9 to Pin 10	30	33	36	V/V
Attack Time	Measured to 90% of Final Value with 10 kHz Tone Burst	300	500	700	μs
Decay Time	Measured to 90% of Final Value with 10 kHz Tone Burst	45	60	75	ms
DC Voltage Range	Minimum Bandwidth to Maximum Bandwidth	1.1		3.8	V

Block Diagram



Physical Dimensions



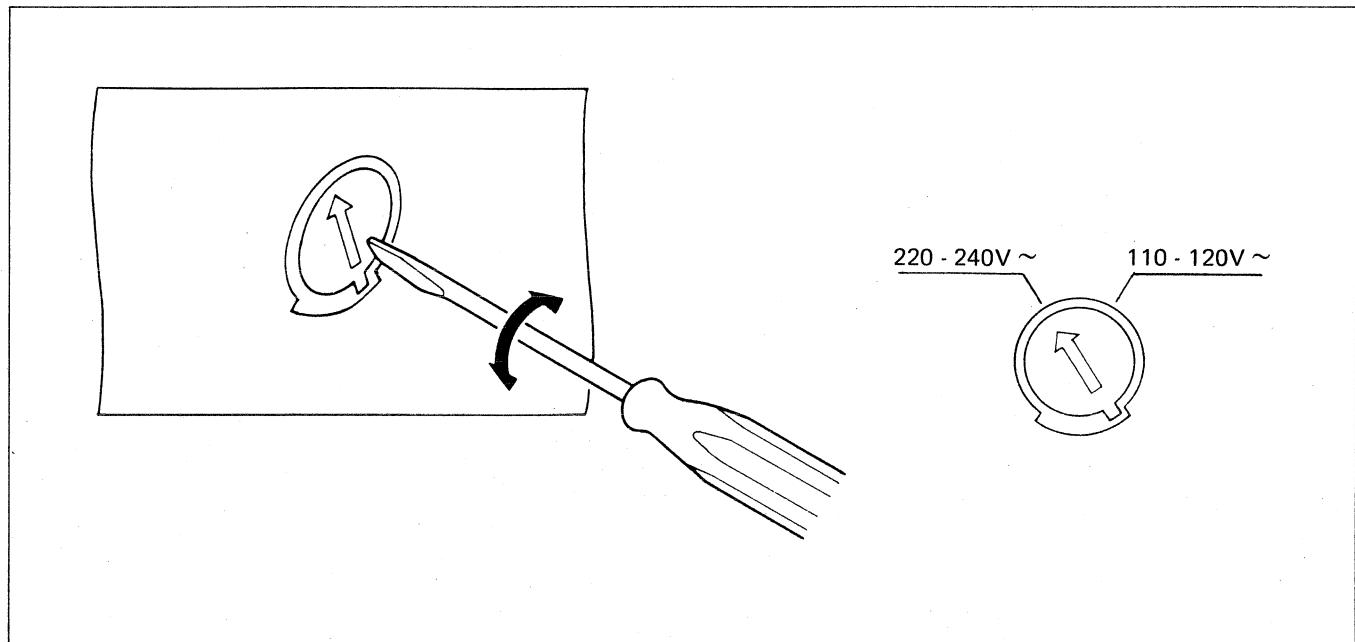
4. VOLTAGE CONVERSION

• EUROPEAN MODEL ONLY

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

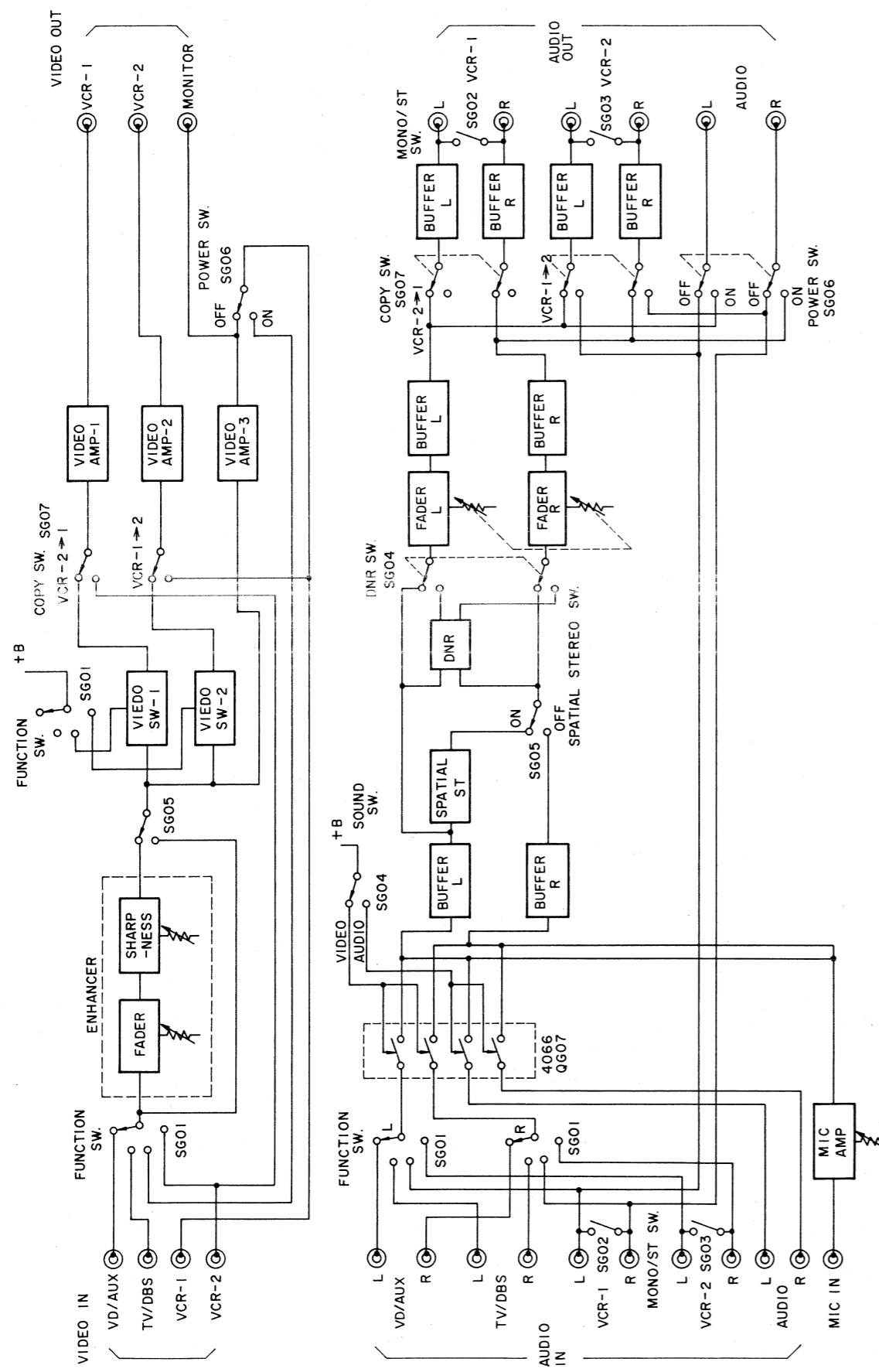
CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

Voltage Conversion Chart



Note on safety: Symbol Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

5. BLOCK DIAGRAM



6. TECHNICAL SPECIFICATIONS

VIDEO SECTION (VCR-1, VCR-2, TV-DBS, VIDEO-AUX)

Video Input Sensitivity/Impedance	1 Vpp/75 ohms
Video Output Level/Impedance	1 Vpp/75 ohms
Signal-to-Noise Ratio (Video Signal)	70 dB
Cross Talk (Video Signal)	45 dB (3.58 MHz)
Frequency Response (Video Signal)	±3 dB (6.5 Hz ~ 8 MHz)
Audio Input Sensitivity/Impedance	150 mV/25 kohms
Audio Output Level/Impedance	150 mV/250 ohms
Signal-to-Noise Ratio (Audio Signal)	85 dB (150 mV, 1HF~Awt)
D. N. R effect (Audio Signal)	10 dB
Separation (Audio Signal, L/R)	50 dB (1 kHz)
Cross Talk (Audio Signal)	60 dB (1 kHz)
Frequency Response (Audio Signal)	±1.5 dB (20 Hz ~ 80 kHz)

AUDIO SECTION (AUDIO, MIC)

Audio Input Sensitivity/Impedance	150 mV/25 kohms
Mic Input Sensitivity/Impedance	2.2 mV/15 kohms
Audio Output Level/Impedance	150 mV/750 ohms
Signal-to-Noise Ratio (150 mV, Audio Signal)	85 dB
Separation (Audio Signal, L/R)	50 dB (1 kHz)
Cross Talk (Audio → Audio)	60 dB (1 kHz)
(Video → Audio)	70 dB (50 Hz, 15 kHz)
(Audio → Video)	65 dB (1 kHz)
Frequency Response (Audio Signal)	±1.5 dB (20 Hz ~ 80 kHz)
Maximum Input Level (Audio Signal)	2 Vrms
Maximum Output Level (Audio Signal)	2 Vrms

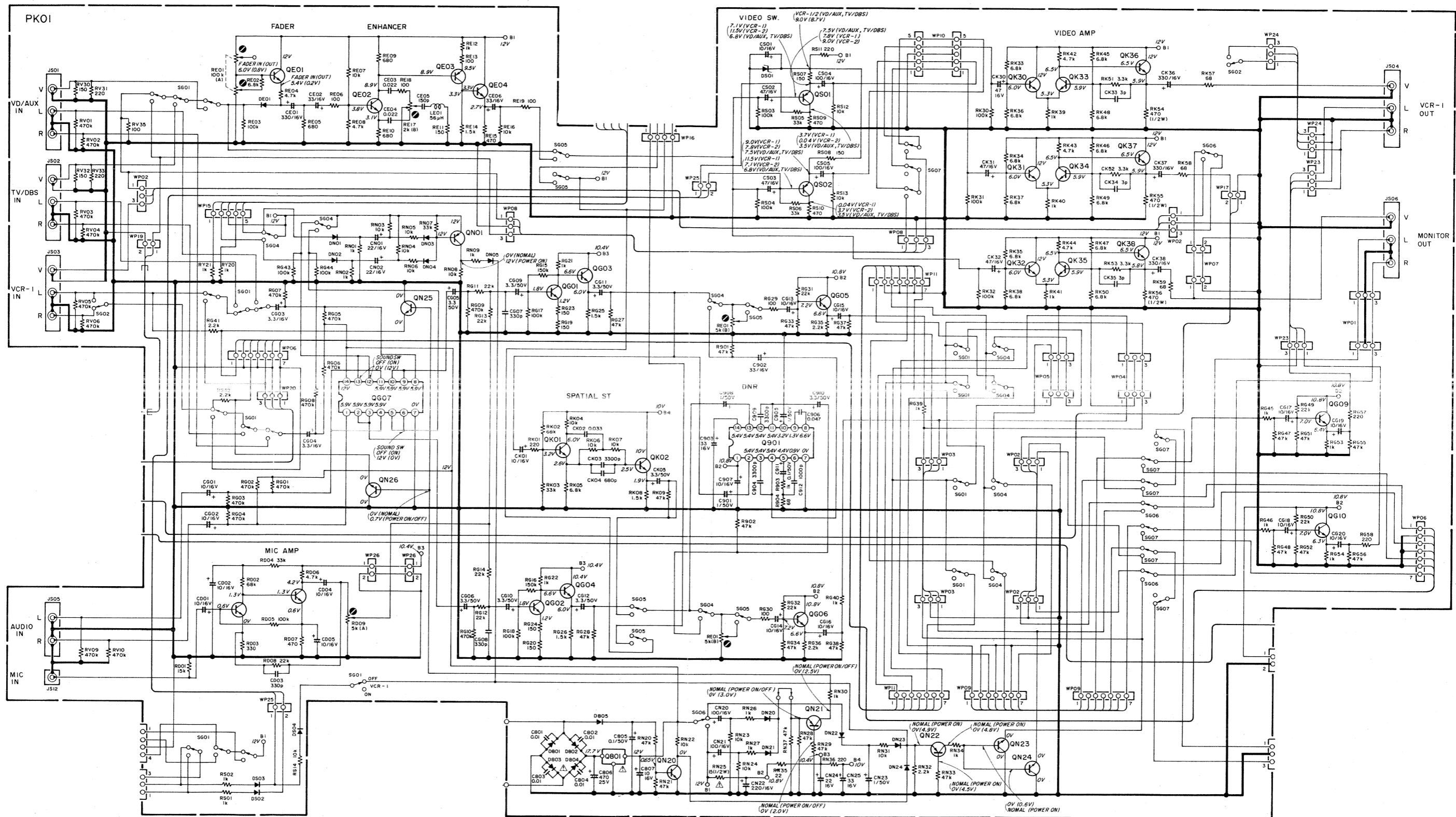
GENERAL

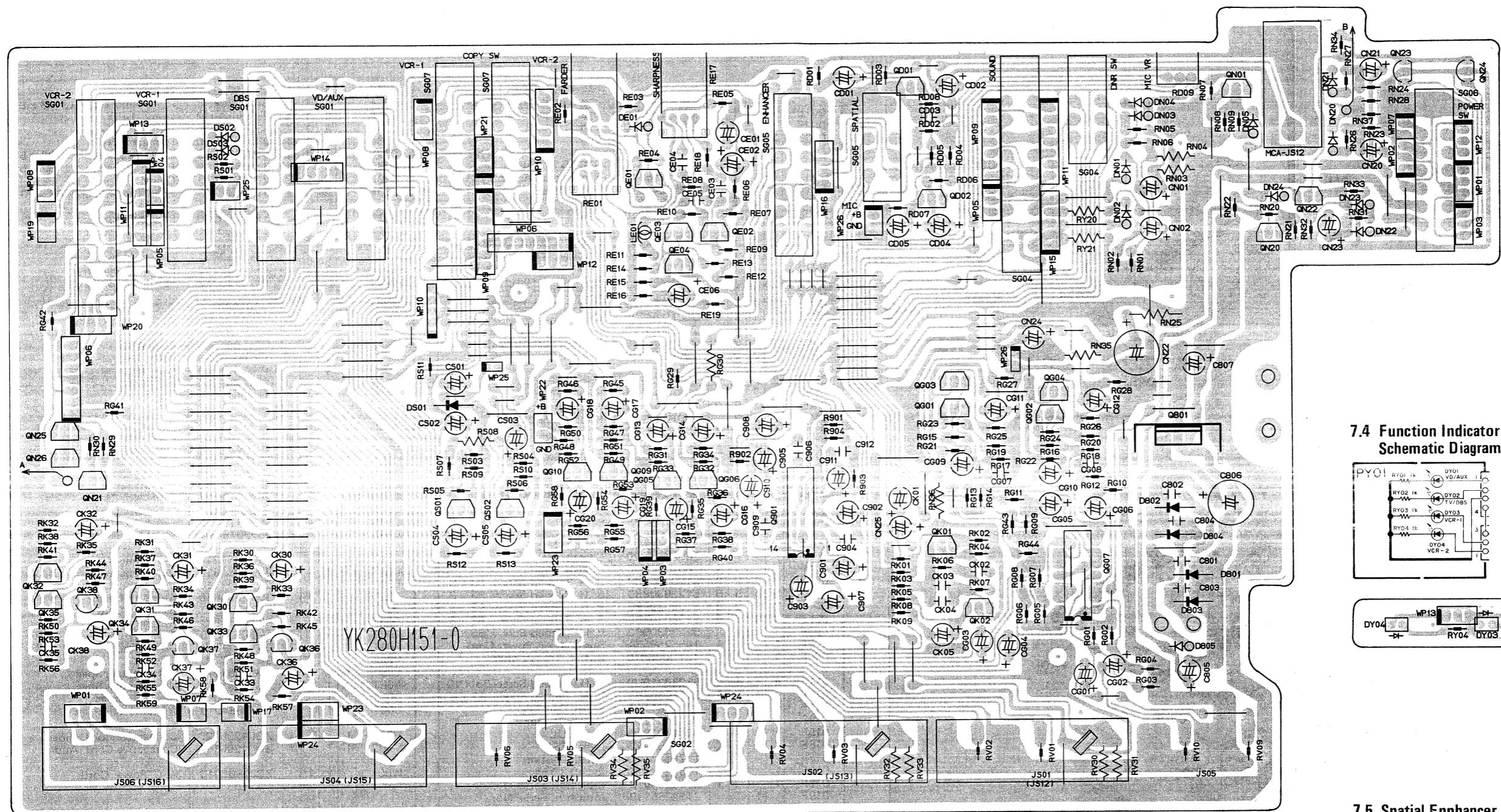
Power Requirement	AC 110~120V/220~240 V 50/60 Hz
Power Consumption	8 W
Dimensions (W x H x D)	420 x 37 x 192 mm
Weight	1.8 kg

Specifications and appearance are subject to change for modification without notice.

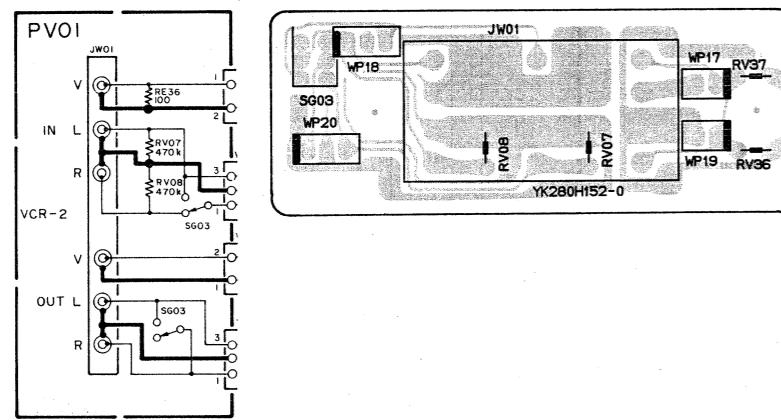
7. SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

7.1 Main Assembly (PK01) Schematic Diagram and Component Locations

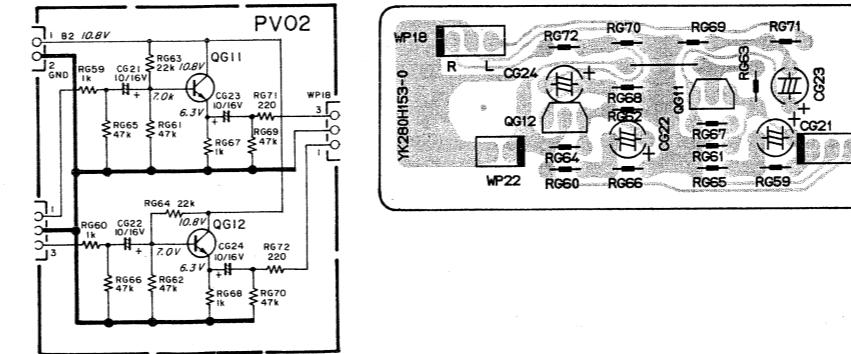




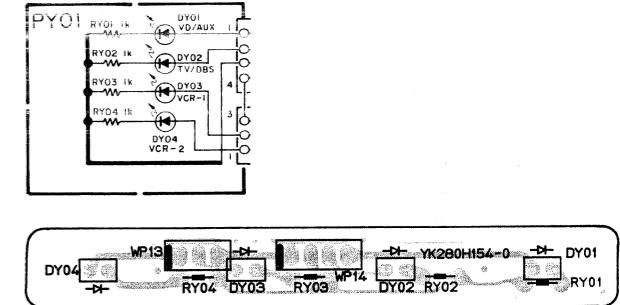
7.2 VCR-2 IN/OUT Assembly (PV01) Schematic Diagram and Component Locations



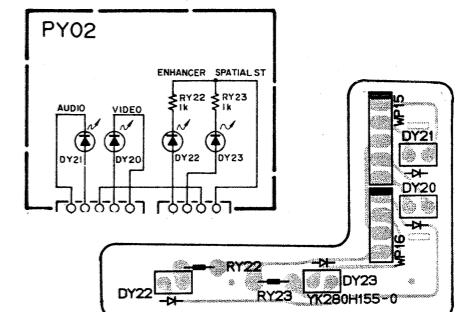
7.3 VCR-2 Sub Assembly (PV02) Schematic Diagram and Component Locations



7.4 Function Indicator Assembly (PY01) Schematic Diagram and Component Locations

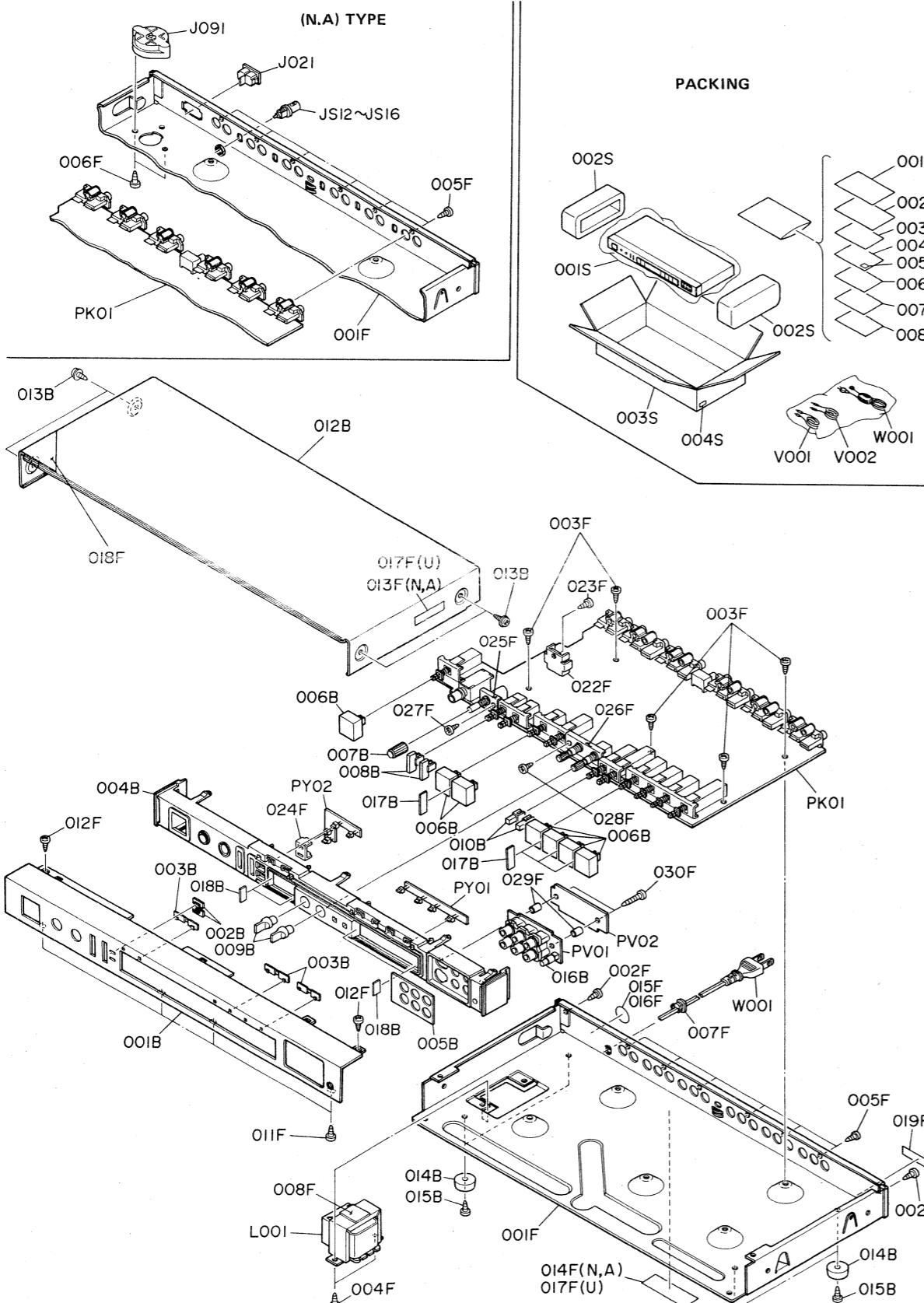


7.5 Spatial Enhancer Assembly (PY02) Schematic Diagram and Component Locations



8. EXPLODED VIEW AND PARTS LIST

- [P01-99] Front panel/Chassis and Packing Materials



- (U): for U.S.A.
- (N): for Europe
- (A): for Australia
- (F): for Japan

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION	REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	U	N	A	F				U	N	A	F		
A 001B	1	1	1	1	280H248400	(BLACK MODEL)	022F	1	1	1	1	2963267020	Heatsink
	1	1	1	1	280H248020	Front Panel Assembly	023F	1	1	1	1	51280308B0	B. H. Tapped Screw B3 x 8
002B	2	2	2	2	249H355010	Front Panel	024F	1	1	1	1	280H051010	Guide, LED
003B	2	3	3	3	280H355010	Lens	025F	1	1	1	1	280H104020	Retainer, Mix VR
						Lens	026F	1	1	1	1	280H104030	Retainer, VR
A1 001B	1	1	1		280H248410	(GOLD MODEL)	027F	1	1	1	1	51100305A9	B. H. M. Screw B3 x 5
	1	1	1		280H248010	Front Panel Assembly	028F	1	1	1	1	51100305A9	B. H. M. Screw B3 x 5
002B	2	2	2		249H355010	Front Panel	029F	2	2	2	2	216T055010	Collar
003B	3	3	3		280H355010	Lens	030F	2	2	2	2	51280320B0	B. H. Tapped Screw B3 x 20
004B	1	1	1	1	280H160020	Bracket, Front (Black)	▲J021	1	1			YP04000580	Plug, AC Input
004B	1	1	1		280H160010	Bracket, Front (Gold)	▲J091	1	1			BY05060060	Voltage Selector
005B	1	1	1	1	280H265030	Indicator, Front (Black)	▲L001	1				TS14132250	Power Transformer
005B	1	1	1		280H265010	Indicator, Front (Gold)	▲L001		1	1		TS14132240	Power Transformer
006B	7	7	7	7	158T270110	Button, Push (Black)	▲L001			1		TS14132230	Power Transformer
006B	7	7	7		158T270010	Button, Push (Gold)	▲W001	1				YCO1900100	A. C. Power Cord
007B	1	1	1	1	258H154320	Knob, Mix Level (Black)	▲W001			1		YCO1900080	A. C. Power Cord
007B	1	1	1		258H154220	Knob, Mix Level (Gold)	JS12		1	1		YP10001980	Plug, BNC
008B	2	2	2	2	280H270030	Button, Push (Black)	JS13		1	1		YP10001980	Plug, BNC
008B	2	2	2		280H270010	Button, Push (Gold)	JS14		1	1		YP10001980	Plug, BNC
009B	2	2	2	2	2988154020	Knob, VR (Black)	JS15		1	1		YP10001980	Plug, BNC
009B	2	2	2		2988154210	Knob, VR (Gold)	JS16		1	1		YP10001980	Plug, BNC
010B	2	2	2	2	030H154120	Knob, Copy (Black)							PACKING
010B	2	2	2		030H154020	Knob, Copy (Gold)	001S	1	1	1	1	9014323160	Polyethylene Bag
012B	1	1	1	1	431H257110	Lid, Top Cover (Black)	002S	2	2	2	2	431H809010	Cushion
012B	1	1	1		431H257010	Lid, Top Cover (Gold)	003S	1				280H801020	Packing Case
013B	4	4	4	4	51706009U0	Special Set Screw	003S		1	1	1	280H801010	Packing Case
014B	4	4	4	4	415H057010	Leg	004S	2	4	4	4	9526019010	Serial No. Cord
015B	4	4	4	4	51280408B0	B. H. Tapped Screw B4 x 8	004S					9526019060	Serial No. Cord
016B	1	1	1	1	280H270500	Button, MONO/ST; K	004S					9526019030	Serial No. Cord
017B	4	4	4	4	280H118010	Spacer	004S					9526019040	Serial No. Cord
018B	4	4	4		280H118020	Spacer							
001F	1				280H105030	Chassis, Main	001T	1				280H851210	User Manual
001F	1	1			280H105020	Chassis, Main	001T		1	1		280H851310	User Manual
001F		1			280H105010	Chassis, Main	001T					280H851110	User Manual
002F	2	2	2	2	51280308B0	B. H. Tapped Screw B3 x 8	002T	1				103H854010	Warranty Card
003F	5	5	5	5	51280308B0	B. H. Tapped Screw B3 x 8	002T			1		9631000090	Warranty Card
004F	2	2	2	2	51280308B0	B. H. Tapped Screw B3 x 8	002T					9631000130	Warranty Card
005F	6	6	6	6	51280308B0	B. H. Tapped Screw B3 x 8	003T			1		128T854010	Warranty Card
006F	2	2			51280308B0	B. H. Tapped Screw B3 x 8	004T			1		9611000050	User's Card
007F	1		1	1	1455259030	Bushing, AC Power Cord	005T			1		9540000010	Licence
008F	1	1	1	1	431H056010	Buffer, Transformer	006T	1				280H851220	User Manual, Spec
011F	4	4	4	4	51280310U0	B. H. Tapped Screw B3 x 10	006T		1	1		280H851320	User Manual, Spec
012F	2	2	2	2	51280308B0	B. H. Tapped Screw B3 x 8	007T		1			280H856010	Circuit Diagram
013F	1	1			2911861140	Label, Caution	008T	1				180T854010	Warranty Card
014F	1	1			2911861110	Label, Caution							
015F	1				9511101070	Label, UL	▲W001	1				ZD01200120	Connective Cord, Video
016F	1				2457861040	Label, CSA	▲W001		1			ZD01200170	Connective Cord, Audio
017F	2				117H861020	Label, Caution							
018F	1				105H861010	Label, 3 Year							
019F	1		1	1	2112265010	Indicator, Serial No.							A. C. Power Cord
019F		1	1		2112265110	Indicator, Serial No.							

9. ELECTRICAL PARTS LIST

- (U): for U.S.A.
- (N): for Europe
- (A): for Australia
- (F): for Japan

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION	REF. DESIG.	Q'TY				PART NO.	DESCRIPTION	
	U	N	A	F				U	N	A	F			
PK01	1	1	1	1	YK280H1510 ZZ280H1510 ZZ280H8510	PK01-MAIN CIRCUIT BOARD (BLACK MODEL)	P. W. Board, Main P. W. Board, Assembly P. W. Board, Assembly	CS01	1	1	1	1	EA10601610	Elect 10μF 16V
	1		1			PK01-MAIN CIRCUIT BOARD (GOLD MODEL)		CS02	1	1	1	1	EA47601610	Elect 47μF 16V
								CS03	1	1	1	1	EA47601610	Elect 47μF 16V
								CS04	1	1	1	1	EA10701610	Elect 100μF 16V
								CS05	1	1	1	1	EA10701610	Elect 100μF 16V
PK01	1	1	1	1	YK280H1510 ZZ280H2510 ZZ280H7510	PK01-MAIN CIRCUIT BOARD (GOLD MODEL)	P. W. Board, Main P. W. Board, Assembly P. W. Board, Assembly	C801	1	1	1	1	DK18103310	Ceramic 0.01μF
	1		1					C802	1	1	1	1	DK18103310	Ceramic 0.01μF
								C803	1	1	1	1	DK18103310	Ceramic 0.01μF
								C804	1	1	1	1	DK18103310	Ceramic 0.01μF
								C805	1	1	1	1	EA10405010	Elect 0.1μF 50V
CD01	1	1	1	1	FA10601610 FA10601610 DK16331300 EA10601610 EA10601610	PK01-CAPACITORS	Elect 10μF 16V Elect 10μF 16V Ceramic 330pF ±10% Elect 10μF 16V Elect 10μF 16V	C806	1	1	1	1	EA47702510	Elect 470μF 25V
	1		1					C807	1	1	1	1	EA10601610	Elect 10μF 16V
								C901	1	1	1	1	EA10505010	Elect 1μF 50V
								C902	1	1	1	1	EA33505010	Elect 3.3μF 50V
								C903	1	1	1	1	EA33601610	Elect 33μF 16V
CD02	1	1	1	1	DK16331300 EA10601610 EA10601610		Ceramic 330pF ±10% Elect 10μF 16V Elect 10μF 16V	C904	1	1	1	1	DF16332310	Film 3300pF ±10%
	1		1					C905	1	1	1	1	EA10505010	Elect 1μF 50V
								C906	1	1	1	1	DF16473310	Film 0.047μF ±10%
								C907	1	1	1	1	EA10601610	Elect 10μF 16V
								C908	1	1	1	1	EA10505010	Elect 1μF 50V
CE01	1	1	1	1	EA33701610 EA33601610 DF16222310 DF16222310 DD15151300 EA33601610		Elect 330μF 16V Elect 33μF 16V Film 0.022μF ±10% Film 0.022μF ±10% Ceramic 150pF ±10% Elect 33μF 16V	C909	1	1	1	1	DF16332310	Film 3300pF ±10%
	1		1					C910	1	1	1	1	EA33505010	Elect 3.3μF 50V
								C911	1	1	1	1	EA10405010	Elect 0.1μF 50V
								C912	1	1	1	1	DF16102310	Film 1000pF ±10%
													PK01-RESISTORS (All Resistors are ±5% and 1/6W)	
CG01	1	1	1	1	EA10601610 EA10601610 EA33505010 EA33505010 EA33505010 EA33505010		Elect 10μF 16V Elect 10μF 16V Elect 3.3μF 50V Elect 3.3μF 50V Elect 3.3μF 50V Elect 3.3μF 50V	RD01	1	1	1	1	GD05153160	15kΩ
	1		1					RD02	1	1	1	1	GD05683160	68kΩ
								RD03	1	1	1	1	GD05331160	330Ω
								RD04	1	1	1	1	GD05333160	33kΩ
								RD05	1	1	1	1	GD05104160	100kΩ
CG02	1	1	1	1	DK16331300 DK16331300 EA33505010 EA33505010		Ceramic 330pF ±10% Ceramic 330pF ±10% Elect 3.3μF 50V Elect 3.3μF 50V	RD06	1	1	1	1	GD05472160	4.7kΩ
	1		1					RD07	1	1	1	1	GD05471160	470Ω
								RD08	1	1	1	1	GD05223160	22kΩ
								RD09	1	1	1	1	RK05020310	5kΩ (A), Variable
CG11	1	1	1	1	EA33505010 EA33505010		Elect 3.3μF 50V Elect 3.3μF 50V	RE01	1	1	1	1	RG01040080	100kΩ(Α), Variable
	1		1					RE02	1	1	1	1	GD05682160	6.8kΩ
								RE03	1	1	1	1	GD05104160	100kΩ
								RE04	1	1	1	1	GD05472160	4.7kΩ
								RE05	1	1	1	1	GD05681160	680Ω
CG12	1	1	1	1	EA10601610 EA10601610		Elect 10μF 16V Elect 10μF 16V	RE06	1	1	1	1	GD05101160	100Ω
	1		1					RE07	1	1	1	1	GD05103160	10kΩ
								RE08	1	1	1	1	GD05472160	4.7kΩ
								RE09	1	1	1	1	GD05681160	680Ω
								RE10	1	1	1	1	GD05681160	680Ω
CG13	1	1	1	1	EA33505010 EA33505010		Elect 3.3μF 50V Elect 3.3μF 50V	RE11	1	1	1	1	GD05151160	150Ω
	1		1					RE12	1	1	1	1	GD05102160	1kΩ
								RE13	1	1	1	1	GD05101160	100Ω
								RE14	1	1	1	1	GD05152160	1.5kΩ
								RE15	1	1	1	1	GD05471160	470Ω
CG20	8	8	8	8	EA10601610		Elect 10μF 16V	RE16	1	1	1	1	GD05103160	10kΩ
	1		1					RE17	1	1	1	1	RK02020140	2kΩ (B), Variable
								RE18	1	1	1	1	GD05101160	100Ω
								RE19	1	1	1	1	GD05101160	100Ω
CK01	1	1	1	1	EA10601610 DF16333350 DF16332350 DK15681350 EA33505010		Elect 10μF 16V Film 0.033μF ±10% Film 3300pF ±10% Film 680pF ±5% Elect 3.3μF 50V	RE06	1	1	1	1	GD05101160	100Ω
	1		1					RE07	1	1	1	1	GD05103160	10kΩ
								RE08	1	1	1	1	GD05472160	4.7kΩ
								RE09	1	1	1	1	GD05681160	680Ω
								RE10	1	1	1	1	GD05681160	680Ω
CK31	1	1	1	1	EA47601610 EA47601610 DD10030300 DD10030300		Elect 47μF 16V Elect 47μF 16V Ceramic 3pF ±0.25pF Ceramic 3pF ±0.25pF	RE11	1	1	1	1	GD05151160	150Ω
	1		1					RE12	1	1	1	1	GD05102160	1kΩ
								RE13	1	1	1	1	GD05101160	100Ω
								RE14	1	1	1	1	GD05152160	1.5kΩ
								RE15	1	1	1	1	GD05471160	470Ω
CK35	1	1	1	1	DD10030300 EA33701610 EA33701610 EA33701610		Ceramic 3pF ±0.25pF Elect 330μF 16V Elect 330μF 16V Elect 330μF 16V	RE16	1	1	1	1	GD05103160	10kΩ
	1		1					RE17	1	1	1	1	RK02020140	2kΩ (B), Variable
								RE18	1	1	1	1	GD05101160	100Ω
								RE19	1	1	1	1	GD05101160	100Ω
CN01	1	1	1	1	EA22601610 EA22601610 EA10701610 EA10701610 EA10505010 EA33601610 EA33601610		Elect 22μF 16V Elect 22μF 16V Elect 100μF 16V Elect 100μF 16V Elect 220μF 16V Elect 1μF 50V Elect 33μF 16V Elect 33μF 16V	RG01	10	10	10	10	GD05474160	470kΩ
	1		1					RG10	10	10	10	10		

- (U): for U.S.A.
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REF. DESIG.	Q'TY				PART NO.	DESCRIPTION	REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	U	N	A	F				U	N	A	F		
RG11	1	1	1	1	GD05223160	22kΩ	RK41	1	1	1	1	GD05102160	1kΩ
RG12	1	1	1	1	GD05223160	22kΩ	RK42	1	1	1	1	GD05472160	4.7kΩ
RG13	1	1	1	1	GD05223160	22kΩ	RK43	1	1	1	1	GD05472160	4.7kΩ
RG14	1	1	1	1	GD05223160	22kΩ	RK44	1	1	1	1	GD05472160	4.7kΩ
RG15	1	1	1	1	GD05154160	150kΩ	RK45	1	1	1	1	GD05682160	6.8kΩ
RG16	1	1	1	1	GD05154160	150kΩ	RK46	1	1	1	1	GD05682160	6.8kΩ
RG17	1	1	1	1	GD05104160	100kΩ	RK47	1	1	1	1	GD05682160	6.8kΩ
RG18	1	1	1	1	GD05104160	100kΩ	RK48	1	1	1	1	GD05682160	6.8kΩ
RG19	1	1	1	1	GD05151160	150Ω	RK49	1	1	1	1	GD05682160	6.8kΩ
RG20	1	1	1	1	GD05151160	150Ω	RK50	1	1	1	1	GD05682160	6.8kΩ
RG21	1	1	1	1	GD05102160	1kΩ	RK51	1	1	1	1	GD05332160	3.3kΩ
RG22	1	1	1	1	GD05102160	1kΩ	RK52	1	1	1	1	GD05332160	3.3kΩ
RG23	1	1	1	1	GD05151160	150Ω	RK53	1	1	1	1	GD05332160	3.3kΩ
RG24	1	1	1	1	GD05151160	150Ω	RK54	1	1	1	1	GD05471160	470Ω
RG25	1	1	1	1	GD05152160	1.5kΩ	RK55	1	1	1	1	GD05471160	470Ω
RG26	1	1	1	1	GD05152160	1.5kΩ	RK56	1	1	1	1	GD05471160	470Ω
RG27	1	1	1	1	GD05473160	47kΩ	RK57	1	1	1	1	GD05680160	68Ω
RG28	1	1	1	1	GD05473160	47kΩ	RK58	1	1	1	1	GD05680160	68Ω
RG29	1	1	1	1	GD05101160	100Ω	RK59	1	1	1	1	GD05680160	68Ω
RG30	1	1	1	1	GD05101160	100Ω	RN01	1	1	1	1	GD05102160	1kΩ
RG31	1	1	1	1	GD05223160	22kΩ	RN02	1	1	1	1	GD05102160	1kΩ
RG32	1	1	1	1	GD05223160	22kΩ	RN03	1	1	1	1	GD05103140	10kΩ 1/4W
RG33	1	1	1	1	GD05473160	47kΩ	RN04	1	1	1	1	GD05103140	10kΩ 1/4W
RG34	1	1	1	1	GD05473160	47kΩ	RN05	1	1	1	1	GD05103160	10kΩ
RG35	1	1	1	1	GD05222160	2.2kΩ	RN06	1	1	1	1	GD05103160	10kΩ
RG36	1	1	1	1	GD05222160	2.2kΩ	RN07	1	1	1	1	GD05333160	33kΩ
RG37	1	1	1	1	GD05473160	47kΩ	RN08	1	1	1	1	GD05103160	10kΩ
RG38	1	1	1	1	GD05473160	47kΩ	RN09	1	1	1	1	GD05102160	1kΩ
RG39	1	1	1	1	GD05102160	1kΩ	RN20	1	1	1	1	GD05473160	47kΩ
RG40	1	1	1	1	GD05102160	1kΩ	RN21	1	1	1	1	GD05473160	47kΩ
RG41	1	1	1	1	GD05222160	2.2kΩ	RN22	1	1	1	1	GD05103160	10kΩ
RG42	1	1	1	1	GD05222160	2.2kΩ	RN23	1	1	1	1	GD05103160	10kΩ
RG43	1	1	1	1	GD05104160	100kΩ	RN24	1	1	1	1	GD05103160	10kΩ
RG44	1	1	1	1	GD05104160	100kΩ	ΔRN25	1	1	1	1	NH05150120	15Ω 1/4W, Fusible
RG45	1	1	1	1	GD05102160	1kΩ	RN26	1	1	1	1	GD05102160	1kΩ
RG46	1	1	1	1	GD05102160	1kΩ	RN27	1	1	1	1	GD05102160	1kΩ
RG47	1	1	1	1	GD05473160	47kΩ	RN28	1	1	1	1	GD05473160	47kΩ
RG48	1	1	1	1	GD05473160	47kΩ	RN29	1	1	1	1	GD05473160	47kΩ
RG49	1	1	1	1	GD05223160	22kΩ	RN30	1	1	1	1	GD05102160	1kΩ
RG50	1	1	1	1	GD05223160	22kΩ	RN31	1	1	1	1	GD05103160	10kΩ
RG51	1	1	1	1	GD05473160	47kΩ	RN32	1	1	1	1	GD05222160	2.2kΩ
RG52	1	1	1	1	GD05473160	47kΩ	RN33	1	1	1	1	GD05473160	47kΩ
RG53	1	1	1	1	GD05102160	1kΩ	RN34	1	1	1	1	GD05102160	1kΩ
RG54	1	1	1	1	GD05102160	1kΩ	RN35	1	1	1	1	GD05220140	22Ω 1/4W
RG55	1	1	1	1	GD05473160	47kΩ	RN36	1	1	1	1	GD05221140	220Ω 1/4W
RG56	1	1	1	1	GD05473160	47kΩ	RN37	1	1	1	1	GD05473160	47kΩ
RG57	1	1	1	1	GD05221160	220Ω	RS01	1	1	1	1	GD05102160	1kΩ
RG58	1	1	1	1	GD05221160	220Ω	RS02	1	1	1	1	GD05102160	1kΩ
RK01	1	1	1	1	GD05221160	220Ω	RS03	1	1	1	1	GD05104160	100kΩ
RK02	1	1	1	1	GD05683160	68kΩ	RS04	1	1	1	1	GD05104160	100kΩ
RK03	1	1	1	1	GD05333160	33kΩ	RS05	1	1	1	1	GD05333160	33kΩ
RK04	1	1	1	1	GD05103160	10kΩ	RS06	1	1	1	1	GD05333160	33kΩ
RK05	1	1	1	1	GD05682160	6.8kΩ	RS07	1	1	1	1	GD05151160	150Ω
RK06	1	1	1	1	GD05103160	10kΩ	RS08	1	1	1	1	GD05151160	150Ω
RK07	1	1	1	1	GD05103160	10kΩ	RS09	1	1	1	1	GD05471160	470Ω
RK08	1	1	1	1	GD05152160	1.5kΩ	RS10	1	1	1	1	GD05471160	470Ω
RK09	1	1	1	1	GD05473160	47kΩ	RS11	1	1	1	1	GD05471160	470Ω
RK30	1	1	1	1	GD05104160	100kΩ	RS12	1	1	1	1	GD05103160	10kΩ
RK31	1	1	1	1	GD05104160	100kΩ	RS13	1	1	1	1	GD05103160	10kΩ
RK32	1	1	1	1	GD05104160	100kΩ	RS14	1	1	1	1	GD05103160	10kΩ
RK33	1	1	1	1	GD05682160	6.8kΩ							
RK34	1	1	1	1	GD05682160	6.8kΩ							
RK35	1	1	1	1	GD05682160	6.8kΩ							
RK36	1	1	1	1	GD05682160	6.8kΩ							
RK37	1	1	1	1	GD05682160	6.8kΩ							
RK38	1	1	1	1	GD05682160	6.8kΩ							
RK39	1	1	1	1	GD05102160	1kΩ							
RK40	1	1	1	1	GD05102160	1kΩ							

- (U): for U.S.A.
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REF. DESIG.	Q'TY				PART NO.	DESCRIPTION	REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	U	N	A	F				U	N	A	F		
RV01	1	1	1	1	GD05474160	470kΩ	QN01	1	1	1	1	HT111752D0	Transistor 2SA1175(EF,FF)
RV02	1	1	1	1	GD05474160	470kΩ	QN20	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)
RV03	1	1	1	1	GD05474160	470kΩ	QN21	1	1	1	1	HT111752D0	Transistor 2SA1175(EF,FF)
RV04	1	1	1	1	GD05474160	470kΩ	QN22	1	1	1	1	HT111752D0	Transistor 2SA1175(EF,FF)
RV05	1	1	1	1	GD05474160	470kΩ	QN23	1	1	1	1	HT413022B0	Transistor 2SD1302(S,T)
RV06	1	1	1	1	GD05474160	470kΩ	QN24	1	1	1	1	HT413022B0	Transistor 2SD1302(S,T)
RV09	1	1	1	1	GD05474160	470kΩ	QN25	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)
RV10	1	1	1	1	GD05474160	470kΩ	QN26	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)
RV30	1	1	1	1	GD05151140	150Ω 1/4W	QS01	1	1	1	1	HT111752D0	Transistor 2SA1175(EF,FF)
RV31	1	1	1	1	GD05221140	220Ω 1/4W	QS02	1	1	1	1	HT111752D0	Transistor 2SA1175(EF,FF)
RV32	1	1	1	1	GD05151140	150Ω 1/4W	△Q801	1	1	1	1	HC10043060	IC μPC7812H
RV33	1	1	1	1	GD05221140	220Ω 1/4W	Q901	1	1	1	1	HC10017360	IC LM1894N
RV35	1	1	1	1	GD05101140	100Ω 1/4W							
RV36	1	1	1	1	GD05101160	100Ω 1/4W							
RY20	1	1	1	1	GD05102140	1kΩ 1/4W							
RY21	1	1	1	1	GD05102140	1kΩ 1/4W							
R901	1	1	1	1	GD05473160	47kΩ	JS01	1	1	1	1	YT02030010	PK01-MISCELLANEOUS
R902	1	1	1	1	GD05473160	47kΩ	JS01	1	1	1	1	YT02020450	Terminal, VD/AUX; (3P)
R903	1	1	1	1	GD05102160	1kΩ	JS02	1	1	1	1	YT02030010	Terminal, VD/AUX; (2P)
R904	1	1	1	1	GD05680160	68Ω	JS02	1	1	1	1	YT02020450	Terminal, TV/DBS; (2P)
						PK01-SEMICONDUCTORS	JS03	1	1	1	1	YT02030010	Terminal, VCR-1 IN; (3P)
DE01	1	1	1	1	HD20015210	Diode 1SS133	JS03	1	1	1	1	YT02020450	Terminal, VCR-1 IN; (2P)
DN01	5	5	5	5	HD20015210	Diode 1SS133	JS04	1	1	1	1	YT02030010	Terminal, VCR-1 OUT; (3P)
DN05							JS04	1	1	1	1	YT02020450	Terminal, VCR-1 OUT; (2P)
DN20							JS05	1	1	1	1	YT02030010	Terminal, Audio IN; (2P)
DN24							JS06	1	1	1	1	YT02020450	Terminal, Monitor OUT; (3P)
													Terminal, Monitor OUT; (2P)
DS01	1	1	1	1	HD30008020	Zener MA1100	JS07	1	1	1	1	YJ10002130	Jack, VD/AUX IN BNC
DS02	1	1	1	1	HD20015210	Diode 1SS133	JS08	1	1	1	1	YJ10002130	Jack, VD/DBS IN BNC
DS03	1	1	1	1	HD20015210	Diode 1SS133	JS09	1	1	1	1	YJ10002130	Jack, VCR-1 IN BNC
DS04	1	1	1	1	HD20015210	Diode 1SS133	JS10	1	1	1	1	YJ10002130	Jack, VCR-1 OUT BNC
△ D801	4	4	4	4	HD20022030	Diode DSF10C	JS11	1	1	1	1	YJ10002130	Jack, Monitor OUT BNC
D804							JS12	1	1	1	1	YP10001980	Plug, BNC
D805	1	1	1	1	HD20015210	Diode 1SS133	JS13	1	1	1	1	YP10001980	Plug, BNC
QD01	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	JS14	1	1	1	1	YP10001980	Plug, BNC
QD02	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	JS15	1	1	1	1	YP10001980	Plug, BNC
QE01	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	JS16	1	1	1	1	YP10001980	Plug, BNC
QE02	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	JS17	1	1	1	1	YB00040100	Connective Cord, BNC
QE03	1	1	1	1	HT111752D0	Transistor 2SA1175(EF,FF)	JS18	1	1	1	1	YB00040100	Connective Cord, BNC
QE04	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	JS19	1	1	1	1	YB00040100	Connective Cord, BNC
QE05							JS20	1	1	1	1	YB00040100	Connective Cord, BNC
QE06							JS21	1	1	1	1	YB00040100	Connective Cord, BNC
QE07	1	1	1	1	HC406600B0	IC LC4066B	JS22	1	1	1	1	YJ1001780	Jack, Mic (Gold)
QE09	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	JS22	1	1	1	1	YJ1002110	Jack, Mic (Black)
QE10	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	LE01	1	1	1	1	LC15630030	Choke Coil, 56μH
QG01	6	6	6	6	HT327852D0	Transistor 2SC2785(EF,FF)	SG01	1	1	1	1	SP06040070	Push Switch, Function
QG06							SG02	1	1	1	1	SS02020880	Slide Switch, VCR-1
QG07	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	SG04	1	1	1	1	SP06020190	MONO/ST
QG09	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	SG05	1	1	1	1	SP04020460	Push Switch, VCR-2
QG10	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	SG06	1	1	1	1	SP04010490	MONO/ST
QK01	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	SG07	1	1	1	1	SP06020200	Push Switch, Power
QK02	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)	WP01	1	1	1	1	YU03380260	Push Switch, Copy
QK30							WP02	1	1	1	1	YU03260260	Jumper Lead, 3P
QK35	6	6	6	6	HT327852D0	Transistor 2SC2785(EF,FF)	WP03	1	1	1	1	YU03260260	Jumper Lead, 3P
QK36	1	1	1	1	HT305362C0	Transistor 2SC536NP(F,G)	WP04	1	1	1	1	YU03200260	Jumper Lead, 3P
QK37	1	1	1	1	HT305362C0	Transistor 2SC536NP(F,G)	WP05	1	1	1	1	YU03260260	Jumper Lead, 3P
QK38	1	1	1	1	HT305362C0	Transistor 2SC536NP(F,G)	WP06	1	1	1	1	YU07200260	Jumper Lead, 7P
							WP07	1	1	1	1	YU02360260	Jumper Lead, 2P
							WP08	1	1	1	1	YU03160260	Jumper Lead, 3P
							WP09	1	1	1	1	YU07160260	Jumper Lead, 7P
							WP10	1	1	1	1	YU05160260	Jumper Lead, 5P

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REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	U	N	A	F		
WP11	1	1	1	1	YU07260260	Jumper Lead, 7P
WP12	1	1	1	1	YU03260260	Jumper Lead, 3P
WP13	1	1	1	1	YU03120260	Jumper Lead, 3P
WP14	1	1	1	1	YU04120260	Jumper Lead, 4P
WP15	1	1	1	1	YU05200260	Jumper Lead, 5P
WP16	1	1	1	1	YU04180260	Jumper Lead, 4P
WP17	1	1	1	1	YU02260260	Jumper Lead, 2P
WP18	1	1	1	1	YU03100260	Jumper Lead, 3P
WP19	1	1	1	1	YU02160260	Jumper Lead, 2P
WP20	1	1	1	1	YU03180260	Jumper Lead, 3P
WP21	1	1	1	1	YU03280260	Jumper Lead, 3P
WP22	1	1	1	1	YU02380260	Jumper Lead, 2P
WP23	1	1	1	1	YU03120260	Jumper Lead, 3P
WP24	1	1	1	1	YU03120260	Jumper Lead, 3P
WP25	1	1	1	1	YU02140260	Jumper Lead, 2P
WP26	1	1	1	1	YU02080260	Jumper Lead, 2P
PV01-VCR-2 IN/OUT CIRCUIT BOARD						
PV01	1	1	1	1	YK280H1520	P. W. Board, VCR-2 IN/OUT
	1	1	1	1	ZZ280H1520	P. W. Board Assembly
RV07	1	1	1	1	GD05474160	Resistor 470kΩ ±5% 1/6W
RV08	1	1	1	1	GD05474160	Resistor 470kΩ ±5% 1/6W
RE36	1	1	1	1	GD05101140	Resistor 100Ω ±5% 1/4W
JW01	1	1	1	1	YT02060220	Terminal, VCR-2 IN/OUT (6P)
016B	1	1	1	1	280H270500	Button (K) with MONO/ST switch
PV02-VCR-2 SUB CIRCUIT BOARD						
PV02	1	1	1	1	YK280H1530	P. W. Board, VCR-2 Sub
	1	1	1	1	ZZ280H1530	P. W. Board Assembly
PV02-CAPACITOR						
CG21	1	1	1	1	EA10601610	Elect 10μF 16V
CG22	1	1	1	1	EA10601610	Elect 10μF 16V
CG23	1	1	1	1	EA10601610	Elect 10μF 16V
CG24	1	1	1	1	EA10601610	Elect 10μF 16V
PV02-RESISTORS (All Resistors are ±5% and 1/6W)						
RG59	1	1	1	1	GD05102160	1kΩ
RG60	1	1	1	1	GD05102160	1kΩ
RG61	1	1	1	1	GD05473160	47kΩ
RG62	1	1	1	1	GD05473160	47kΩ
RG63	1	1	1	1	GD05223160	22kΩ
RG64	1	1	1	1	GD05223160	22kΩ
RG65	1	1	1	1	GD05473160	47kΩ
RG66	1	1	1	1	GD05473160	47kΩ
RG67	1	1	1	1	GD05102160	1kΩ
RG68	1	1	1	1	GD05102160	1kΩ
RG69	1	1	1	1	GD05473160	47kΩ
RG70	1	1	1	1	GD05473160	47kΩ
RG71	1	1	1	1	GD05221160	220Ω
RG72	1	1	1	1	GD05221160	220Ω
PV02-SEMICONDUCTORS						
QG11	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)
QG12	1	1	1	1	HT327852D0	Transistor 2SC2785(EF,FF)

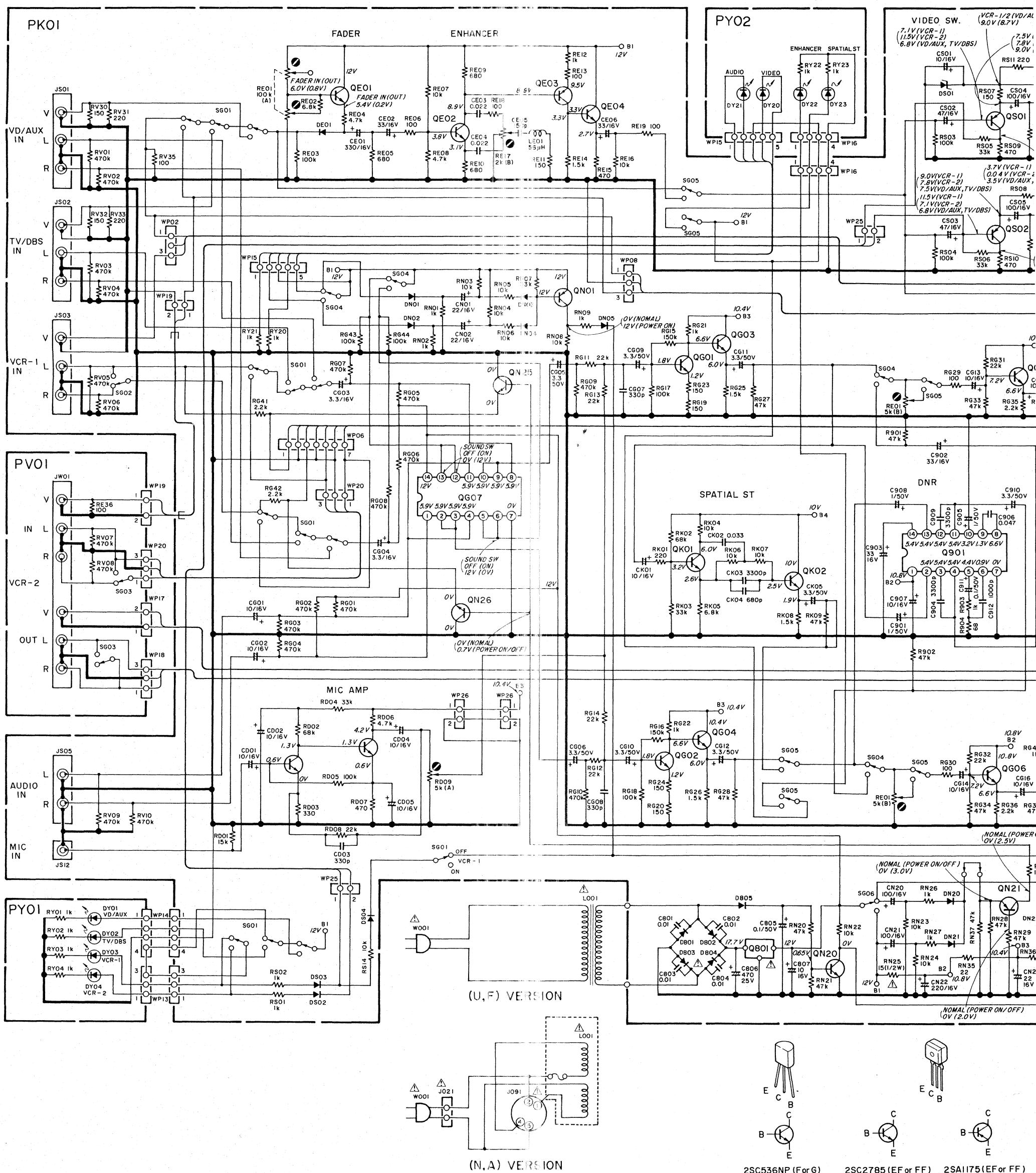
REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	U	N	A	F		
PY01	1	1	1	1	YK280H1540	PY01-FUNCTION INDICATOR CIRCUIT BOARD
	1	1	1	1	ZZ280H1540	P. W. Board, Function Indicator
RY01	1	1	1	1	GD05102160	Resistor 1kΩ ±5% 1/6W
RY02	1	1	1	1	GD05102160	Resistor 1kΩ ±5% 1/6W
RY03	1	1	1	1	GD05102160	Resistor 1kΩ ±5% 1/6W
RY04	1	1	1	1	GD05102160	Resistor 1kΩ ±5% 1/6W
DY01	1	1	1	1	HI10007080	L.E.D. SEL-1120R
DY02	1	1	1	1	HI10007080	L.E.D. SEL-1120R
DY03	1	1	1	1	HI10007080	L.E.D. SEL-1120R
DY04	1	1	1	1	HI10007080	L.E.D. SEL-1120R
PY02-SPATIAL ENHANCER CIRCUIT BOARD						
PY02	1	1	1	1	YK280H1550	P. W. Board, Spatial Enhancer
	1	1	1	1	ZZ280H1550	P. W. Board Assembly
RY22	1	1	1	1	GD05102160	Resistor 1kΩ ±5% 1/6W
RY23	1	1	1	1	GD05102160	Resistor 1kΩ ±5% 1/6W
DY20	1	1	1	1	HI10008080	L.E.D. SEL-1320G
DY21	1	1	1	1	HI10007080	L.E.D. SEL-1120R
DY22	1	1	1	1	HI10007080	L.E.D. SEL-1120R
DY23	1	1	1	1	HI10007080	L.E.D. SEL-1120R

(W01-99)	Assembly and wiring
(T01-99)	Adjustment
(X01-00)	Correction

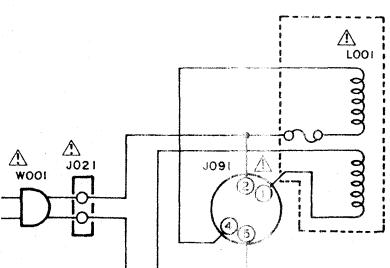
NOTE ON SAFETY:

Symbol  Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol  . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

10. SCHEMATIC DIAGRAM



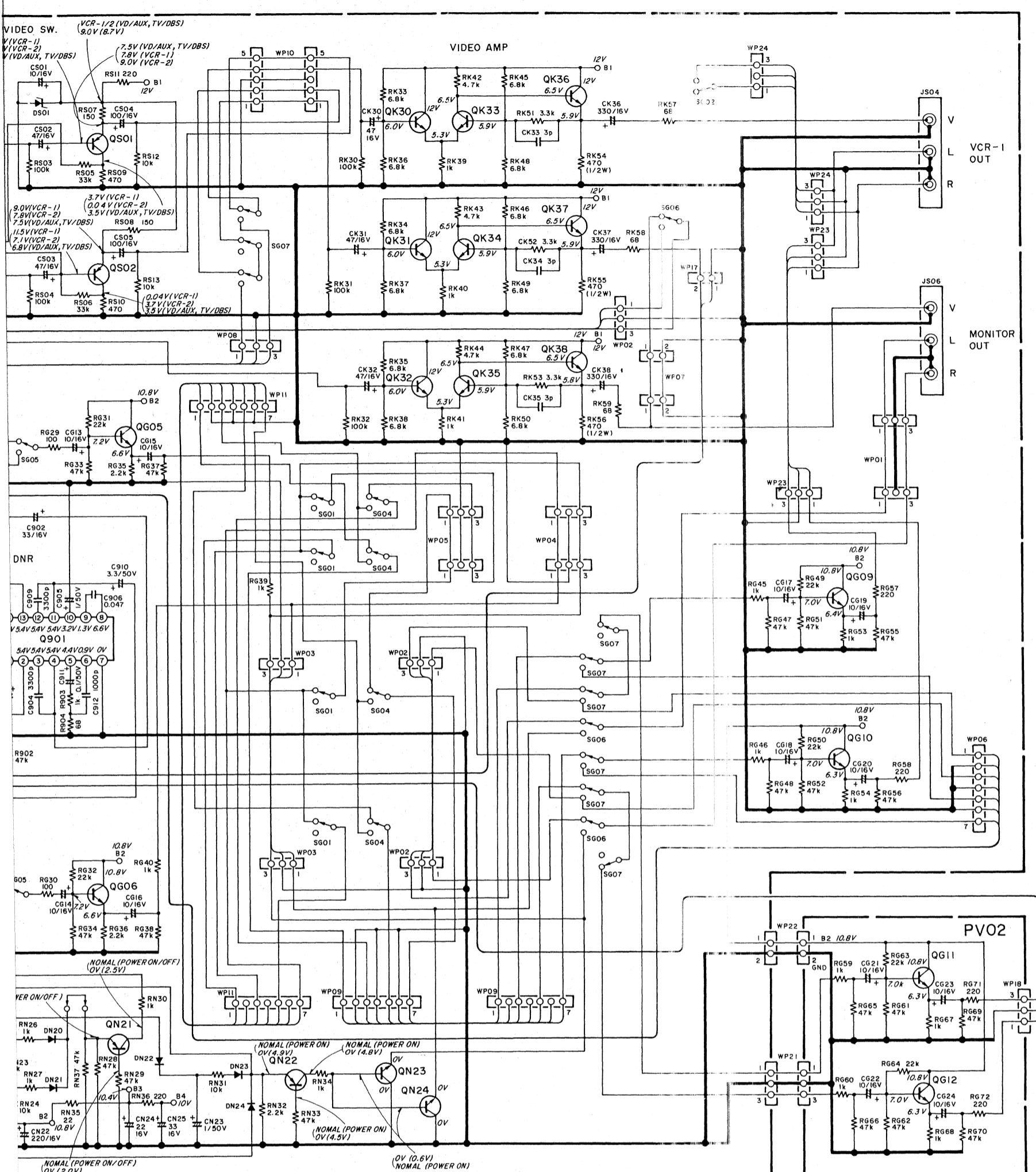
(U, F) VERSION



(N, A) VERSION

2SC536NP (For G) 2SC2785 (EF or FF) 2SA1175 (EF or FF)
2SD1302 (S or T)

Model AV251



Q901
HC10017360
LM1894N

QN01, QN21, QN22
Q501, Q502, Q503
HT11752D0
2SA1175 (EF or FF)

QD01, QD02
QK01, QK02
QK30 ~ QK35
QG01 ~ QG06
QG09 ~ QG12
QE01, QE02, QE04
QN20, QN25, QN26
HT327852D0
2SC2785 (EF or FF)

QG07
HC40660B0
LC4066B

QN23, QN24
HT413022B0
2SD1302 (S or T)

Q801
HC10043060
μPC7812H

QK36 ~ QK38
HT305362C0
2SC536NP (For G)

DY01 ~ DY04
DY21 ~ DY23
HI10007080
SEL-1120R

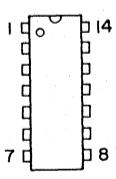
DY20
HI10008080
SEL-1320G

DS01
HD30008020
MA1100

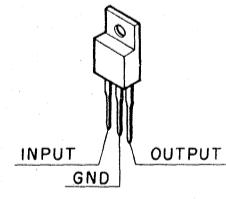
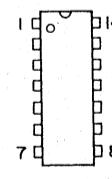
DN01 ~ DN05
DN20 ~ DN24
DS02, DS03, DS04
D805, DE01
HD20015210
ISS133

D801 ~ D804
HD20022030
DSFI0C

TOP VIEW



TOP VIEW



μPC7812H

Components and wiring are subject to change for modification without notice.